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Case Study

EFFICACY OF *MADHYAMA PANCHAMOOLA CHURNA* IN *KSHEENASHUKRA* (OLIGOSPERMIA) - A CASE REPORT

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KEYWORDS: Male infertility, Oligospermia, *Ksheenashukra*, *Madhyama panchamoola churna*.

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ABSTRACT

Male infertility is a condition in which male inability to result pregnancy in fertile female partner. It accounts to 40-50% infertility. It is due to low sperm concentration, poor sperm motility and abnormal morphology of sperm etc. Ayurveda classical texts explained male fertility defects under eight types of *Shukra dusti*. *Ksheenashukra* is one among *Shukradusti* affecting lowered state of sperm concentration and it can be correlated to Oligospermia. There are number of single and combination of drugs mentioned to this condition. In present case study, a subject of 32 year old male attended the free male infertility medical camp with complaints of unable to conceive her partner even after unprotected intercourse since 4 years of married life. Semen analysis report reveals that low sperm count and low motility. This case was treated with *Madhyama panchamoola churna* along with *Ksheera* for 3 months. After the course of the treatment semen volume, sperm count, sperm motility, sperm morphology, total testosterone and sexual activity were enhanced. His partner conceived during the course of the treatment. The findings in study revealed that *Madhyama panchamoola churna* in Oligospermia with no adverse effects highlight the scope of Ayurveda medicine in male infertility disorders.

INTRODUCTION

Reproduction is a biological process. Propagation of species is the basic phenomenon in nature. Parenthood remains one of the most desired goals of every couple. *Rutu* (*Raja samaya*-Fertility period), *Kshetra* (*Garbhashaya*- Uterus), *Ambu* (*Rasa dathu*- Nutritional factor) and *Beeja* (*Artava* and *Shukra*- Ovum and Sperm) are the principle factors for conception. Any impairments in these factors are leading to infertility.[1] Infertility is a disease of reproductive system defined as failure to achieve clinical pregnancy after 12 months or more of regular unprotected intercourse.[2] As per WHO estimation 60-80 million couples (8-12%) worldwide currently suffer from infertility.[3] Prevalence of primary infertility in India ranges between 3.9 to 16.8%.[4] Oligospermia is a seminal disorder in which sperm concentration is less than 15 million/per milliliter.[5] Low sperm count and poor sperm quality are responsible for male infertility in more than 90% of the cases.[6] *Ksheenashukra* is one of the *Shukradushti* caused by vitiation of *Vata pitta dosha* and becomes diminished state of quality and quantity of *Shukra dathu*.[7] It can be correlated to Oligospermia. The line of treatment in *Ksheenashukra* is *Ksheene shukrakari kriya* means the activity which enhances the *Shukra* (Semen and sperm).[8] Drugs which enhances the *Shukra* are called *Shukrala* drugs. *Madhyama panchamoola* comprises of *Bala*, *Punarnava*, *Eranda*, *Mudgaparni* and *Mashaparni*.[9] This combination attributes *Shukrala*, *Jeevaniya* and *Rasayana* activities. A case study is reported for Oligospermia has marked improvements in seminal parameters.

Case Report

Presentation

A male subject aged about 32 years with average built and weighing 50kg has attended male infertility free medical camp organised by Ph.D studies in Department of Dravyaguna, Government Ayurveda Medical College, Dhanvantari Road,

Bengaluru, presenting with complaints of no child since 4 years. From the proper screening and investigation reports and examination the case was diagnosed as Oligospermia. He was registered with OPD Register No. 43/21003090 on 8-1-2021. The semen analysis report revealed low semen volume 1ml, low sperm count 12million/ml, low motility and low testosterone level before treatment. He was treated with *Madhyama panchamoola churna* for 3 months and advised to follow up for 30th, 75th and 90th days. History of partner is healthy and aged about 27 years and reported regular menstruation cycles, no complaints related her fertility status.

Treatment History

Patient had bilateral mild Varicocele. Varicocelectomy was done on 14-12-2015. After scanning on 26-12-2015 the report reveals that patient had acute epididymitis left testis and hypoechoic right testis. Another semen analysis report on 2016 shows sperm count is 30 million with low motility. Semen analysis done on 10-04-2019, in which sperm count is 20 million with low motility. The case was treated with Tab. Paternia XT and Tab. Clofert 50mg twice daily for 3 months. No marked improvement in seminal parameters and also his partner not conceived. Patient was discontinued these medicines and came to the Ayurveda treatment.

Past History

Patient with history of epididymitis left testis, Varicocele and Irritable bowel syndrome (IBS).

Personal History

Mixed dietary habits with medium appetite and digestion. Regular consume of foods: *Ushna* (hot), *Katu* (pungent) *Rasa* and *Amla* (sour) *Rasa*. No physical exercise.

Sexual History

Complains of lack of sexual desire and erectile dysfunctions

Examination

Systemic and local examination not revealed any abnormalities.

Assessment

Subject was assessed before and after treatment with following parameters.

1. Semen analysis
2. Hormonal assay– FSH, LH and Total Testosterone
3. International Index Erectile Function (IIEF) Questionnaire score

Table 1: Treatment Schedule

Name of medicine	Dose	*Anupana* (Vehicle)	Time	Duration
Madhyama panchamoola churna	Six grams divided dose	Cow's milk	Before food twice daily morning and night	3 months

Table 2: Pharmacological Profile of *Madhyama Panchamoola Churna*[10]

S.No	Name of the drug	Properties				
		Rasa	***Guna***	***Veerya***	***Vipaka***	***Karma***
1	*Bala*	*Madhura*	*Snigdha Picchila*	*Sheeta*	*Madhura*	*Vatapittashamaka, Brumhana, Balya, Shukrala & Ojovardhana*
2	*Punarnava*	*Madhura, Tikta*	*Laghu, Rooksha*	*Ushna*	*Madhura*	*Tridoshahara, Deepana Anulomana, Vrushya & Rasayana*
3	*Eranda*	*Madhura*	*Snigdha Teekshna Sukshma*	*Ushna*	*Madhura*	*Vatahara, Balya, Vrushya* and *Shukrashodhana,*
4	*Mudgaparni*	*Tikta, Madhura*	*Laghu Rooksha*	*Sheeta*	*Madhura*	*Tridoshahara, Deepana, Anulomana, Jeevaneeya* and *Shukrala, Vrushya*
5	*Mashaparni*	*Tikta, Madhura*	*Laghu, Rooksha Snigdha*	*Sheeta*	*Madhura*	*Vata pitta shamaka Deepana, Anulomana Balya, Jeevaniya* and *Shukrajanana*

Table 3: Phytoconstituents with Relevant Research Updates of *Madhyama Panchamoola* Related to Antioxidant And *Shukrala* (Spermatogenic) Activity [11 - 16]

S.no	Name of drugs	Phyto constituents	Pharmacological activities
1	*Bala (Sida cordifolia)*	Gallic acid and Quercetin	Gallic acid increases the antioxidant capacity and modifies the reproductive toxicity.
2	*Punarnava (Boerhaavia diffusa)*	Boeravinone B and G Rotenoids	Anti-stress activity and Antioxidant
3	*Eranda (Ricinus communis)*	Octacosanol	Improves semen volume, sperm concentration and motility in rams.
4	*Mudgaparni (Vigna trilobata)*	Vitexin, Quercetin	Vitexin- Antioxidant, ameliorates sexual dysfunction and fertility impairments in male diabetic mice. Quercetin improves sperm morphology and functions
5	*Mashaparni (Teramnus labialis)*	Vitexin, Bergenin	Bergenin- Antioxidant, improves sperm concentration, diabetic testicular complications and Reduce the sperm DNA Damage in Wistar albino rats

RESULTS

Table 4: Effect of *Madhyama Panchamoola Churna* on Seminal Parameters, Hormonal Assay And International Index Erectile Function (IIEF) Questionnaire Score

S.no	Assessments	Before (BT)	30th day	75th day	90th day (AT)
		Date: 8-01-21	Date: 8-2-21	Date 23-3-21	Date 8-4-21
	Semen analysis				
1	Volume	1ml	1.5ml	1.5ml	1.5ml
2	Odour	Spermine	Spermine	Spermine	Spermine
3	Colour	Greyish white	Greyish white	Greyish white	Greyish white
4	Viscosity	Normal	Normal	Normal	Normal
5	Liquefaction time	>60 minutes	30 minutes	30 minutes	30 minutes
6	pH	8.0	7.5	7.5	7.5
7	Sperm concentration	12 million/ml	55 million/ml	60 million/ml	60 million/ml
8	Active motility	40%	45%	40%	40%
9	Sluggish motility	10%	30%	35%	35%
10	Non motile	50%	25%	25%	25%
10	Morphology	65%	80%	80%	80%
11	Fructose	Present	Present	Present	Present
12	Pus cells	4-5	4-6	4-6	4-6
	Blood-Hormonal assay				
1	FSH	23.99mIU/ml		24.77 mIu/ml	
2	LH	11.68mIU/ml		13.15 mIu/ml	
3	Total Testosterone	2.77 ng/ml		3.04 ng/ml	
	IIEF-Questionnaire score				
1	Erectile function	10	19	22	
2	Orgasmic function	4	6	8	
3	Sexual desire	5	7	8	
4	Intercourse satisfaction	6	10	12	
5	Overall satisfaction	4	7	8	

BT- Before treatment, AT– After treatment

Sperm concentration was increased 12million/ml to 60million/ml No marked improvement in active motility but sluggish motility improved from 10% to 35% and 50% of no motile sperms before treatment, only 25% are remained non-motile after the treatment. Sperm morphology was increased by 60% to 80%, after treatment Total testosterone level raised from 2.77ng/ml to 3.04ng/ml. His Partner was reported pregnancy positive on 9- 2-2021 further USG abdomen scan has confirmed the clinical pregnancy.

DISCUSSION

Vajeekarana is a special system of Ayurveda which deals with various *Shukradosha* like *Alpa*, *Dusta, Ksheena*, and *Vishushka retas* their management and also it helps the production and ejaculation of *Shukra* in healthy individuals.[17] The word *Shukrala* activity composed of both *Shukravruddhi* and *Shukrasruti* actions i.e., production and ejaculation of *Shukra*.[18] Enhanced sperm count, motility, morphology and semen volume needed for *Garbhadharana* (conception). *Bahu* (large quantity) is one of the *Guna* (property) mentioned for *Shudha shukra*. Low sperm count named as Oligospermia- (*Ksheenashukra*) is the commonest causative factor for male infertility which is caused by vitiation of *Vata pitta dosha*. The line of treatment in *Ksheenashukra* is administration of *Shukravardhaka* drugs and these are labelled as *Shukrala*.

The daily consumption food with *Katu rasa*, *Ushna*, lack of daily *Vyayama* and *Chinta*– lifestyle modifications are contributory factors for *Ksheenashukra*. *Madhyama panchamoola* as a whole is having *Kaphavatahara* and *Sara guna* properties. *Kaphavata hara* property helps in reducing the Liquefaction time from >60 minutes to normal liquefaction time 30 minutes. *Sara guna* having *Vrushya* property by virtue of its quality it enhances the sperm count and motility.

Ingredients present in the *Madhyama panchamoola* are *Bala* (Root), *Punarnava* (Root), *Eranda* (Root), *Mudgaparni* (Whole Plant) and *Mashaparni* (Whole Plant). Individually these drugs have potential contributing factors to address *Shukradosha*. *Bala* is *Balya*, *Rasayana*, *Prajasthapana* and *Vatahara*. *Punarnava* is *Rasayana*. *Eranda* is the drug of choice for *Vrushya* and *Vatahara*. Both *Mashaparni* and *Mudgaparni* are *Jeevaniya* and *Shukrajanana* (Spermatogenic) properties.

Elevated Reactive Oxygen Species (ROS) levels can affect many aspects of the sperm quality, including structural integrity, motility, morphology, count, viability, and DNA integrity, thereby making it one of the potential causes of male factor infertility. A higher intake of antioxidant-rich foods can potentially improve sperm DNA integrity and overall semen quality.[19] Drugs of *Madhyama panchamoola* have antioxidant property. It protects the sperms from reactive oxygen species and increases the sperm count, motility and morphology.

With all phytoconstituents and pharmacological activities of *Madhyama pachamoola* which enhances semen volume, sperm concentration, sperm motility, sperm morphology and testosterone level. Testosterone which is important for sperm production as well increases the sexual activity of male. Overall effect on sexual activity of drug also measured through International index of erectile function scale. Before treatment score was 29, after one month of treatment scores were increased to 50 and on 75th day score increased to 58. Increased in sexual activity and marked improvement in seminal parameters was observed.

CONCLUSION

Ayurveda system of medicine has effective treatment in male infertility disorders. *Madhyama Panchamoola Churna* has *Shukrala* potential drugs which enhance the *Shukra* and can be a fruitful medicine in treating an Oligospermia. There were no adverse drug reactions reported during this study.

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